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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,267	08/23/2001	Paul F.L. Weindorf	V200-0876	2648

29074 7590 10/26/2006

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EXAMINER

SHAPIRO, LEONID

ART UNIT PAPER NUMBER

2629

DATE MAILED: 10/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/939,267		WEINDORF, PAUL F.L.	
	Examiner		Art Unit	
	Leonid Shapiro		2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 28, 36, 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guthrie et al. (US Patent No. 6,323,598 B1) in view of Fregoso (US Patent No. 6,724,156 B2) and Perry (US Patent No. 6,150,771).

As to claim 28, Guthrie et al. teaches a system for a backlit display (See Col. 1, Lines 7-49), comprising:

a plurality of light emitting diodes connected together in series (See Fig. 1, items L1, L2, Col. 3, Lines 51-61);

a plurality of parallel elements connected in parallel with a plurality of light emitting diodes (See Fig. 1, items Z1, Z2, Col. 4, Lines 51-65).

Guthrie et al. do not show a current monitor connected with the plurality of light emitting diodes that measures an amount of current flowing from the plurality of light emitting diodes and generates a current flow signal; and a voltage converter that supplies a current to the plurality of light emitting diodes as a function of current flow signal and commanded current signal, a temperature sensor in communication with the plurality of light emitting diodes to measure a temperature of the light emitting diodes and generate a temperature signal corresponding to the temperature, above a threshold

temperature the voltage converter being configured to reduce the current to the plurality of light emitting diodes as a function of the temperature signal.

Fregoso teaches a current monitor connected with the plurality of light emitting diodes that measures an amount of current flowing from the plurality of light emitting diodes and generates a current flow signal (See Fig. 2, item 38, Col. 3, Lines 13-24); and a voltage converter that supplies a current to the plurality of light emitting diodes as a function of current flow signal (See Fig. 2, items 38, 26, Col. 3, Lines 13-46) and commanded current signal (See Fig. 2, items 24, 28, 30, Col.3, Lines 28-37), a temperature sensor (in the reference a current sensing resistor) in communication with the plurality of light emitting diodes to measure a temperature of the light emitting diodes and generate a temperature signal corresponding to the temperature (See Fig. 1, item 18, from Col. 2, Line 58 to Col. 3, Line 4), above a threshold temperature the voltage converter being configured to reduce the current to the plurality of light emitting diodes as a function of the temperature signal (in the reference is equivalent to protecting LEDs (item 20) from thermal runaway) (See Fig. 1, item 20, from Col. 2, Line 58 to Col. 3, Line 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the driving circuit as shown by Fregoso in the Guthrie et al. apparatus in order to enable efficient light producing device (See from Col. 1, Line 67 to Col. 2, Line 2 in the Fregoso reference).

Fregoso and the Guthrie et al. do not show the voltage converter being in electrical communication with plurality of parallel elements to automatically increase a

voltage across a parallel element of the plurality of parallel element based on the current flow signal, thereby causing the current flow through the parallel element and around a light emitting diode of the plurality of light emitting diodes upon an open circuit failure of the light emitting diode.

Perry teaches the voltage converter being in electrical communication with plurality of parallel elements to automatically increase a voltage across a parallel element of the plurality of parallel element based on the current flow signal, thereby causing the current flow through the parallel element and around a light emitting diode of the plurality of light emitting diodes upon an open circuit failure of the light emitting diode (See Fig. 13, items 160A, 164, Col. 9, Lines 47-58).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the driving circuit as shown by Perry into Fregoso and the Guthrie et al. apparatus in order to minimize a reduction in light output in case of LED failure (See Col. 3, Lines 24-28 in the Perry reference).

Perry, Fregoso and the Guthrie et al. do not explicitly mentioning using the plurality of LED to provide back light for LCD.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use backlighting LED's for LC display.

Notice that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

As to claim 36, Fregoso teaches the commanded current signal comprises a direct current signal (See Col. 2, Lines 58-59).

As to claim 38, Guthrie et al. teaches the plurality of parallel elements comprises a plurality of zener diodes (See Fig. 1, items Z1, Z2, Col. 4, Lines 51-65).

As to claims 39-40, Guthrie et al. teaches a parallel element is connected in parallel with a light emitting diode (See Fig. 2, items L1, L2, Z1, Z2, Col. 6, Lines 43-56).

2. Claim 29-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perry, Fregoso and the Guthrie et al. as applied to claim 28 above, and further in view of Surai (US Patent no. 5,598,068).

As to claim 29, Perry, Fregoso and the Guthrie et al. do not disclose a temperature derating circuit that reduces the current to the plurality of light emitting diodes the temperature signal exceeds the temperature threshold.

Surai teaches a temperature derating circuit that reduces the current to the plurality of light emitting diodes the temperature signal exceeds the temperature threshold (See Col. 2, Lines 60-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Surai into Perry, Fregoso and the Guthrie et al. system in order to illuminate a region (See Col. 1, Lines 8-11 in the Surai reference).

As to claims 30 Surai describes a temperature derating circuit that reduces the current to the plurality of light emitting diodes the temperature signal exceeds the

temperature threshold and a first feedback loop by providing the temperature signal to the temperature derating circuit (See Col. 2, Lines 60-67).

As to claims 31-35 Fregoso discloses a luminance display processor configured to adjust the commanded current signal based on the temperature signal to provide the consistent brightness from the plurality of light emitting diodes (See Fig. 1, items 10,12,14,18,20, Col. 2, Lines 26-65).

3. Claims 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guthrie et al. and Fregoso, Perry as applied to claim 1 above, and further in view of Swanson et al. (US Patent No. 6,362,578 B1).

Guthrie et al. and Fregoso, Perry do not show the commanded current signal comprises a pulse width modulated signal.

Swanson et al. teaches the commanded current signal comprises a pulse width modulated signal (See Fig. 1, items 14, 16, 18, TS-PWM, Col. 6, Lines 58-62).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Swanson et al. into Fregoso, Perry and the Guthrie et al. system in order to provide a pulse width modulated signal.

4. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guthrie et al., Fregoso and Swanson et al. and further in view of Malinen (US Patent No. 6,075,595).

Guthrie et al., Fregoso, Perry and Swanson et al. do not show the temperature measures a solder temperature near a light emitting diode.

Malinen teaches using special solder for LED chips and temperature measuring instrument (See Fig. 2a, items 5, 7, Col. 7, Lines 50-67).

It would have been obvious to one of ordinary skill in the art at the time invention to use a solder for measurement as shown by Malinen in Fregoso, Perry, the Guthrie et al. and Swanson et al. apparatus in order to measure temperature of LED.

Limitation of claim 11 would have been considered as obvious variation of the matter selection of location of temperature sensor which fails patentably distinguish over the prior art.

5. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guthrie et al., Fregoso, Perry and Swanson et al. and further in view of Berkcan (US Patent No. 5, 555,583).

Guthrie et al., Fregoso, Perry and Swanson et al. do not show the temperature sensor comprises a temperature dependent resistor.

Berkcan teaches the temperature sensor comprises a temperature dependent resistor (See Fig. 2, items 28, 65, Col. 3, Lines 6-25).

It would have been obvious to one of ordinary skill in the art at the time invention to use a solder for measurement as shown by Berkcan in Fregoso, Perry, the Guthrie et al. and Swanson et al. apparatus in order to measure temperature of LED.

6. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guthrie et al., Fregoso, Perry and Swanson et al. as applied to claim 12 above, and further in view of Loewenthal et al. (US Patent No. 5, 712,922).

Guthrie et al., Fregoso, Perry and Swanson et al. do not show the temperature dependent resistor and cathode terminal of a light emitting diode are thermally interconnected.

Loewenthal et al. teaches the temperature dependent resistor and anode terminal of a light emitting diode are thermally interconnected (See Col. 27, Lines 15-30).

It would have been obvious to one of ordinary skill in the art at the time invention to thermally interconnect cathode (instead of anode) of LED and thermistor as shown by Loewenthal et al. in Fregoso, Perry, the Guthrie et al. and Swanson et al. apparatus in order to measure temperature of LED.


Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LS
10.17.06



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